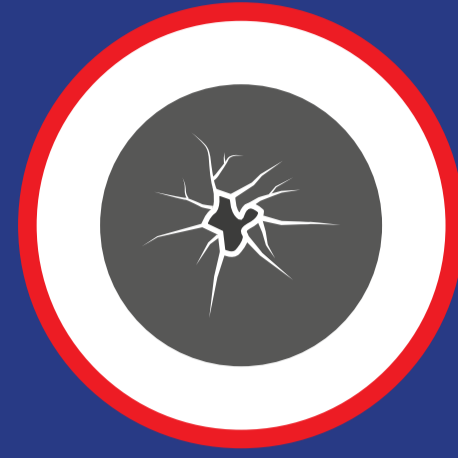


# Implementation of a Dynamic Air Immersion Mattress in a Specialist NHS Hospital Trust for the Prevention and Management of Pressure Ulcers

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## INTRODUCTION



Pressure ulcers continue to pose significant challenges to clinicians, patients, and healthcare providers alike.



A known risk factor, identified in international guidance<sup>2</sup> and several pressure ulcer (PU) risk assessment tools<sup>3,4</sup>, is any neurological condition where sensory perception and response is altered.



There is a continued focus on their prevention and management with organisations such as the European Pressure Ulcer Advisory Panel (EPUAP) and the National Wound Care Strategy Programme (NWCSP)<sup>1</sup>.

Due to the complexities that this patient cohort can experience, such as altered sensation due to neuropathy, the provision of an appropriate support surface is an essential part of PU preventative care and highlighted in this patient case series.

## METHOD

This mixed method study was undertaken at The Walton Centre NHS Foundation Trust which is the only NHS Trust in the UK dedicated to providing neurology, neurosurgery, spinal and pain management services and captures four inpatient journeys, including staff and patient feedback.

Following an evaluation period, a new dynamic air immersion mattress, the Medstrom Aria<sup>®</sup> PRO was introduced to the Trust in April 2022. The decision to adopt this particular mattress was two-fold:

- ✓ The complexity of this particular patient group, including immobility and neurological deficit
- ✓ Coupled with the additional features that the mattress offered including a heel off-loading function, which was not needed during this trial, much lighter and easier to move from a moving and handling perspective, the max-inflate mode facilitated a more productive rehabilitation program and the screen functionality was much more user friendly



Figure 1. The Walton Centre Mattress Selection Pathway

An updated PU prevention pathway (Figure 1) was developed by the tissue viability team to reflect the introduction of the new mattress. The Aria PRO offers both constant immersion (continuous low pressure) and Gradient Immersion (alternating low pressure) therapy. All four patients received constant immersion (reactive therapy) as this is the Trust's preferred therapy choice.

## RESULTS

The findings of this patient case series, such as patient demographics, medical history and clinical outcomes can be seen in Table 1.

Positive feedback was received from both staff and patients. Staff report that the mattress is easy to use and more reliable compared to previous dynamic systems they have used. Therapy staff find the 'Max Inflate' feature especially useful when mobilising and rehabilitating patients.

Patients reported to be comfortable and sleeping well, with no noise heard from the pump. One lady (patient 4) stated that:

*"The mattress feels part of me and would like to go home with one"*

From a Tissue Viability Perspective, the additional features offered by the Aria PRO and the ongoing support and education provided by Medstrom enabled a smooth implementation/transition process and ongoing reassurance that the mattress is used correctly and appropriately within this complex patient group.

Patient	Sex	Age	Past Medical History	Reason for Admission	Skin Integrity on Admission	Waterlow Risk Assessment Score	Length of Stay on Mattress	Skin Integrity During Time on Mattress
1	Female	51	Neuropathy, Anaemia, Livedo Reticularis	Altered sensation to fingers, hands, and arms	Category 2 Pressure Ulcer (PU) to Sacrum and right buttock combined with moisture associated skin damage (MASD)	26	62 days	Both PUs healed and MASD resolved and no new pressure related skin damage
2	Male	73	Type 2 diabetes, colon cancer, Hypothyroidism, diverticulitis	Severe leg weakness. Posterior Thoracic fixation/Decompression and Fusion of T8-T9 for infective discitis	MASD to sacrum and Category 1 PU right buttock	18	22 days	Category 1 PU resolved, MASD remains and no new pressure related skin damage
3	Female	31	Gastric Sleeve Surgery, High BMI	Nutritional Neuropathy (both legs) secondary to gastric sleeve surgery and COVID	No pressure related skin damage and MASD to skin folds	15	40 days	MASD resolved and no new pressure related skin damage
4	Female	40	Multiple sclerosis (MS), restricted mobility	Complexities of MS, restricted mobility	No skin integrity related issues	16	121 days	No new skin integrity related issues

Table 1: Patient Demographics

## DISCUSSION & CONCLUSION

Effective pressure ulcer prevention and treatment is multifactorial and requires a holistic, individualised approach. A clinically effective support surface forms part of this approach, as identified within the aSSKINg framework<sup>5</sup>.

The benefits of adopting this dynamic air immersion therapy mattress within this specialist care setting has been two-fold. It has not only contributed to these patients receiving safe, effective harm free care but also a positive impact on their rehabilitation and mobilisation.

The ease of use reported, and specific features of the mattress have been advantageous for staff alongside achieving positive outcomes for patients such as sound sleep due to comfort and absence of noise from the system. This mattress continues to be used in the Trust and forms part of the mattress selection pathway.

### REFERENCES

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